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**BEFORE THE BOARD OF PATENT APPEALS**
**AND INTERFERENCES**

Application Number: 10/597,625
Filing Date: August 01, 2006
Appellant(s): CHARTON ET AL.

Arnold Turk
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed December 22, 2010 appealing from the Office action mailed July 23, 2010.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 1-27

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(**5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading “WITHDRAWN REJECTIONS.” New grounds of rejection (if any) are provided under the subheading “NEW GROUNDS OF REJECTION.”

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant’s brief.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| 6,613,393 | RAUSCHNABEL et al. | 09-2003 |
| WO 99/63129 | RAUSCHNABEL et al. | 12-1999 |
| 5,464,710 | YANG | 11-1995 |
| 4,715,319 | BRINGMANN et al. | 12-1987 |
| 4,619,865 | KEEM et al. | 10-1986 |
| 2005/0040034 | LANDGRAF et al. | 02-2005 |
| WO 03/048406 | LANDGRAF et al. | 06-2003 |

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 2, 5-7, 9-14, 17, 19-21, and 23-26 are rejected under 35 U.S.C. 102(a) as being anticipated by Rauschnabel et al. (U.S. Pat. 6,613,393).

Regarding claim 1, Rauschnabel et al. teach a method for producing an ultrabarrier layer system (Fig. 2). Rauschnabel et al. teach vacuum coating on a substrate a layer stack comprising an alternating layer system of smoothing layers and transparent ceramic layers, and comprising at least one smoothing layer between two transparent ceramic layers, which transparent layers are applied by sputtering and a

monomer is admitted into an evacuated coating chamber in which a magnetron plasma is operated during deposition of the least one smoothing layer. (Column1 lines 57-67; Column 2 lines 1-62; Column 3 lines 60-67; Column 4 lines 1-15; Column 6 lines 35-67; Column 7 lines 1-23; Fig. 2) The examiner understands the smoothing layer to be a monomer created layer.

Regarding claim 2, Rauschnabel et al. teach that during deposition of the at least one smoothing layer the magnetron plasma operated in a pulsed manner with a pulse frequency of a few Hz and 10 kHz. (Column 2 lines 21-42)

Regarding claim 5, Rauschnabel et al. teach utilizing a noble gas as a working gas. (Column 2 lines 49-55)

Regarding claim 6, Rauschnabel et al. teach utilizing Si-organics. (Column 2 lines 1-20)

Regarding claim 7, Rauschnabel et al. teach utilizing at least one of oxygen, nitrogen and hydrogen. (Column 2 lines 49-55)

Regarding claim 9, Rauschnabel et al. teach the transparent ceramic layer can be deposited by magnetron sputtering. (Column 3 lines 60-67; Column 4 lines 1-15)

Regarding claim 10, Rauschnabel et al. teach the transparent ceramic layer to deposited by reactive magnetron sputtering and at least one of nitrogen, oxygen, and hydrogen as a reactive gas. (Column 3 lines 60-67; Column 4 lines 1-15)

Regarding claim 11, Rauschnabel et al. teach depositing Al2O3 as the transparent ceramic layer. (Column 3 lines 60-67)

Regarding claim 12, Rauschnabel et al. teach depositing $SiO_2$ as the transparent ceramic layer. (Column 3 lines 60-67)

Regarding claim 13, Rauschnabel et al. teach depositing SiN as the transparent ceramic layer. (Column 3 lines 60-67)

Regarding claim 14, Rauschnabel et al. teach the coating to take place on a stationary substrate. (See Fig. 3)

Regarding claim 17, Rauschnabel et al. teach depositing on plastic substrate. (Column 6 lines20-37)

Regarding claim 19, Rauschnabel et al. teach depositing alternating layers and performing alternate monomer and reactive gas deposition in a single chamber. (Column 6 lines 34-64)

Regarding claim 20, Rauschnabel et al. teach alternating HDMSO and oxygen for sputtering. (Column 2 lines 14-15; Column 4 lines 21)

Regarding claim 21, Rauschnabel et al. teach depositing an alternating layer system where flows of the gas are controlled to form intermediate layers which correspond to the gradual change between layers. (Column 3 lines 31-33; Column 5 lines 66-67; Column 6 lines 1-2)

Regarding claim 23, Rauschnabel et al. teach the alternating layer system is deposited by at least one magnetron arrangement and admission of monomer and reactive gas or working gas takes place at different sites so that the layers of the alternating layer system are deposited successively when passing through a coating

region on a moving substrate. (Column 6 lines 1-2; Column 6 lines 65-67; Column 7 lines 1-23)

Regarding claim 24, Rauschnabel et al. teach the alternating layer system is deposited by at least one magnetron arrangement and admission of monomer and reactive gas or working gas taking place at different sites so that a clear partial pressure gradient between the admitted gases develop in the region of the magnetron plasma such that when passing through the coating region on a moving substrate layers are successively deposited which merge into one another in a gradient form. (Column 6 lines 1-2; Column 6 lines 65-67; Column 7 lines 1-23)

Regarding claim 25, Rauschnabel et al. teach the substrate comprises moving a substrate through the coating region several times. (Fig. 2; Column 6 lines 65-67; Column 7 lines 1-23)

Regarding claim 26, Rauschnabel et al. teach deposition of the alternating system through simultaneous admission of HMDSO and oxygen. (Column 2 lines 1-20; Column 2 lines 49-62)

Claims 1, 2, 5-7, 9-14, 17, 19-21, and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Rauschnabel et al. (WO 99/63129) (Rauschnabel et al. (U.S. Pat. 6,613,393) used for translational purposes).

Regarding claim 1, Rauschnabel et al. teach a method for producing an ultrabarrier layer system (Fig. 2). Rauschnabel et al. teach vacuum coating on a substrate a layer stack comprising an alternating layer system of smoothing layers and transparent ceramic layers, and comprising at least one smoothing layer between two

transparent ceramic layers, which transparent layers are applied by sputtering and a monomer is admitted into an evacuated coating chamber in which a magnetron plasma is operated during deposition of the least one smoothing layer. (Column1 lines 57-67; Column 2 lines 1-62; Column 3 lines 60-67; Column 4 lines 1-15; Column 6 lines 35-67; Column 7 lines 1-23; Fig. 2) The examiner understands the smoothing layer to be a monomer created layer.

Regarding claim 2, Rauschnabel et al. teach that during deposition of the at least one smoothing layer the magnetron plasma operated in a pulsed manner with a pulse frequency of a few Hz and 10 kHz. (Column 2 lines 21-42)

Regarding claim 5, Rauschnabel et al. teach utilizing a noble gas as a working gas. (Column 2 lines 49-55)

Regarding claim 6, Rauschnabel et al. teach utilizing Si-organics. (Column 2 lines 1-20)

Regarding claim 7, Rauschnabel et al. teach utilizing at least one of oxygen, nitrogen and hydrogen. (Column 2 lines 49-55)

Regarding claim 9, Rauschnabel et al. teach the transparent ceramic layer can be deposited by magnetron sputtering. (Column 3 lines 60-67; Column 4 lines 1-15)

Regarding claim 10, Rauschnabel et al. teach the transparent ceramic layer to deposited by reactive magnetron sputtering and at least one of nitrogen, oxygen, and hydrogen as a reactive gas. (Column 3 lines 60-67; Column 4 lines 1-15)

Regarding claim 11, Rauschnabel et al. teach depositing Al2O3 as the transparent ceramic layer. (Column 3 lines 60-67)

Regarding claim 12, Rauschnabel et al. teach depositing SiO2 as the transparent ceramic layer. (Column 3 lines 60-67)

Regarding claim 13, Rauschnabel et al. teach depositing SiN as the transparent ceramic layer. (Column 3 lines 60-67)

Regarding claim 14, Rauschnabel et al. teach the coating to take place on a stationary substrate. (See Fig. 3)

Regarding claim 17, Rauschnabel et al. teach depositing on plastic substrate. (Column 6 lines20-37)

Regarding claim 19, Rauschnabel et al. teach depositing alternating layers and performing alternate monomer and reactive gas deposition in a single chamber. (Column 6 lines 34-64)

Regarding claim 20, Rauschnabel et al. teach alternating HDMSO and oxygen for sputtering. (Column 2 lines 14-15; Column 4 lines 21)

Regarding claim 21, Rauschnabel et al. teach depositing an alternating layer system where flows of the gas are controlled to form intermediate layers which correspond to the gradual change between layers. (Column 3 lines 31-33; Column 5 lines 66-67; Column 6 lines 1-2)

Regarding claim 23, Rauschnabel et al. teach the alternating layer system is deposited by at least one magnetron arrangement and admission of monomer and reactive gas or working gas takes place at different sites so that the layers of the alternating layer system are deposited successively when passing through a coating

region on a moving substrate. (Column 6 lines 1-2; Column 6 lines 65-67; Column 7 lines 1-23)

Regarding claim 24, Rauschnabel et al. teach the alternating layer system is deposited by at least one magnetron arrangement and admission of monomer and reactive gas or working gas taking place at different sites so that a clear partial pressure gradient between the admitted gases develop in the region of the magnetron plasma such that when passing through the coating region on a moving substrate layers are successively deposited which merge into one another in a gradient form. (Column 6 lines 1-2; Column 6 lines 65-67; Column 7 lines 1-23)

Regarding claim 25, Rauschnabel et al. teach the substrate comprises moving a substrate through the coating region several times. (Fig. 2; Column 6 lines 65-67; Column 7 lines 1-23)

Regarding claim 26, Rauschnabel et al. teach deposition of the alternating system through simultaneous admission of HMDSO and oxygen. (Column 2 lines 1-20; Column 2 lines 49-62)

Claims 3, 4, 8, 22 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rauschnabel et al. (U.S. Pat. 6,613,393) or Rauschnabel et al. (WO 99/63129) in view of Landgraf et al. (WO 03/048406 A2) (Landgraf et al. U.S. PGPUB. 2005/0040034 A1 used for translation).

Rauschnabel et al. '393 or '129 is discussed above and all is as applies above. (See Rauschnabel et al. '393 or '129)

The differences between Rauschnabel et al. ‘393 or ‘129 and the present claims is that to maintain the magnetron plasma during deposition of the at least one smoothing layer, a magnetron is used that is equipped with a target that is made of a material that can be reactively converted with nitrogen or oxygen is not discussed (Claim 3), a double magnetron being used to maintain the plasma during the deposition of the at least one smoothing layer is not discussed (Claim 4), the process pressure is not discussed (Claim 8) and the reactive gas and the monomer gas being introduced via a common gas intake is not discussed (Claims 22, 27).

Regarding claim 3, Landgraf et al. teach maintaining the magnetron plasma during deposition of the at least one smoothing layer, a magnetron is used that is equipped with a target that is made of a material that can be reactively converted. (See Abstract; Paragraph 0011, 0017-0021) Rauschnabel et al. ‘393 or ‘129 teach utilizing oxygen or nitrogen for sputtering. (See Rauschnabel et al. ‘393 or ‘129 discussed above)

Regarding claim 4, Landgraf et al. teach magnetron sputtering and utilizing a second magnetron 13. (Paragraph 0011; 0021)

Regarding claim 8, Landgraf et al. teach the pressure can be 1 to 5 Pa. (Paragraph 0031)

Regarding claims 22, 27, Landgraf et al. teach the reactive gas and the monomer gas being introduced via a common gas intake. (Paragraph 0020)

The motivation for utilizing the features of Landgraf et al. is that it allows for coating efficiently and homogenously. (Paragraph 0008)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Rauschnabel et al. ‘393 or ‘129 by utilizing the features of Landgraf et al. because it allows for coating efficiently and homogenously.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rauschnabel et al. (U.S. Pat. 6,613,393) or Rauschnabel et al. (WO 99/63129) in view of Yang (U.S. Pat. 5,464,710).

Rauschnabel et al. ‘393 or ‘129 is discussed above and all is as applies above. (See Rauschnabel et al. ‘393 or ‘129)

The differences between Rauschnabel et al. ‘393 or ‘129 and the present claims is coating a web is not discussed. (Claim 15)

Regarding claim 15, Yang teaches coating a web with a monomer. (See Fig. 4; Column 8 lines 42-48)

The motivation for utilizing the features of Yang is that it allows for economical coating of substrates. (Column 3 lines 62-65)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Rauschnabel et al. ‘393 or ‘129 by utilizing the features of Yang because it allows for economical coating of substrates.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rauschnabel et al. (U.S. Pat. 6,613,393) or Rauschnabel et al. (WO 99/63129) in view of Bringmann et al. (U.S. Pat. 4,715,319).

Rauschnabel et al. ‘393 or ‘129 is discussed above and all is as applies above. (See Rauschnabel et al. ‘393 or ‘129)

The differences between Rauschnabel et al. ‘393 or ‘129 and the present claims is that keeping the substrate below 200 degrees C during the coating is not discussed. (Claim 16)

Regarding claim 16, Bringmann et al. teach keeping the substrate at 35 degrees C during the coating process. (See Bringmann et al. discussed above)

The motivation for utilizing the features of Bringmann et al. is that it allows for producing good uniformity. (Column 6 lines 42-48)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Rauschnabel et al. ‘393 or ‘129 by utilizing the features of Bringmann et al. because it allows for producing good coating uniformity.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rauschnabel et al. (U.S. Pat. 6,613,393) or Rauschnabel et al. (WO 99/63129) in view of Keem et al. (U.S. Pat. 4,619,865).

Rauschnabel et al. ‘393 or ‘129 is discussed above and all is as applies above. (See Rauschnabel et al. ‘393 or ‘129)

The differences between Rauschnabel et al. ‘393 or ‘129 and the present claims is that the thickness of the layers is not discussed (Claim 18).

Regarding claim 18, Keem et al. teach that layers should range from 50 Angstroms to 5,000 Angstroms. (Column 1 lines 64-68; Column 2 lines 1-25)

The motivation for utilizing the features of Keem et al. is that it allows for providing protection of the substrates. (Column 1 line 17)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Rauschnabel et al. ‘393 or ‘129 by utilizing the features of Keem et al. because it allows for providing protection of the substrates.

**(10) Response to Argument**

**(I) Response to the Traversal of rejection of claims 1, 2, 5-7, 9-14, 19-21 and 23-26 under 35 U.S.C. 102 (A) as being anticipated by Rauschnabel-US.**

(A) Response to the arguments for independent Claim 1 and dependent Claims 5, 14, and 17:

In response to the argument that Rauschnabel-US does not teach a method of producing an ultrabarrier layer system but instead teaches production of a wear protection layer system, it is argued that Rauschnabel-US teaches a wear protection layer system which would be the same as Appellant’s ultrabarrier layer system because the materials and methods used to produce Rauschnabel-US’s layer system are the same as Appellants methods and materials used to produce their layer system. (Rauschnabel-US - Column1 lines 57-67; Column 2 lines 1-62; Column 3 lines 60-67; Column 4 lines 1-15; Column 6 lines 35-67; Column 7 lines 1-23; Fig. 2)

In response to the argument that Rauschnabel-US does not teach materials or methods that would inherently provide a method for producing an ultrabarrier layer system, it is argued that Rauschnabel-US teach in Fig. 2 a layer system with alternating

layers of ceramics and plasma polymerized layers produced by sputtering and CVD. It is argued that Rauschnabel-US teaches a wear protection layer system which would be the same as Appellant's ultrabarrier layer system because the materials and methods used to produce Rauschnabel-US's layer system are the same as Appellants methods and materials used to produce their layer system (Rauschnabel-US - Column1 lines 57-67; Column 2 lines 1-62; Column 3 lines 60-67; Column 4 lines 1-15; Column 6 lines 35-67; Column 7 lines 1-23; Fig. 2)

In response to the argument that Rauschnabel-US does not depict in Fig. 2 an ultrabarrier layer system, it is argued that Rauschnabel-US show in Fig. 2 an alternating layers system of ceramic layers (i.e. oxides and nitrides of Si and Al) and plasma polymerized layers (i.e. using HMDSO from monomers) which are the materials Appellant require for their layers. (See Rauschnabel-US discussed above; Rauschnabel-US Column 2 lines 1-20; Column 3 lines 60-65; Column 6 lines 35-47)

In response to the argument that Rauschnabel-US's wear protection layer is not inherently an ultrabarrier layer system, it is argued that since Rauschnabel-US utilize the same materials as Appellant in their ultrabarrier layer system that Rauschnabel-US's layer system can be considered to be an ultrabarrier layer system since the materials in Rauschnabel-US will have the same properties as Appellant's materials because they are the same materials. (See Rauschnabel-US discussed above; Rauschnabel-US Column 2 lines 1-20; Column 3 lines 60-65; Column 6 lines 35-47; Especially consider the oxides, nitrides of Si or Al for the ceramic layers and the plasma polymerized layer produced from a monomer of HMDSO.)

In response to the argument that Rauschnabel-US fails to teach layer systems that have a permeation barrier against oxygen and water vapor to produce the claimed ultrabarrier layer system, it is argued that since Rauschnabel-US's materials are the same as Appellant's materials the layer system of Rauschnabel-US will have the same property. (See Rauschnabel-US discussed above)

In response to the argument that Rauschnabel-US does not teach producing at least two transparent ceramic layers by sputtering, it is argued that Rauschnabel-US teach producing at least two ceramic layers by sputtering. (Rauschnabel-US Column 3 lines 29-65; Column 6 lines 35-47)

In response to the argument that Rauschnabel-US does not teach a smoothing layer to prevent growth defects in a ceramic layer from continuing over several layers, it is argued that since Rauschnabel-US teach a plasma polymerization layer that is produced the same way Appellant's plasma polymerization layer is produced and since it is of the same material that Rauschnabel-US's plasma polymerization layer is considered to be a smoothing layer. (Rauschnabel-US Column 2 lines 1-42)

In response to the argument that Rauschnabel-US does not teach using a magnetron to produce the smoothing layer, it is argued that Rauschnabel-US teach utilizing magnetic field enhancement when producing the smoothing layer which is considered to be using a magnetron. (Rauschnabel-US Column 2 line 39)

In response to the argument that claims 5, 14, 17 and patentable for at least the reasons set forth with respect to claim 1, it is argued that claims 5, 14, 17 are not patentable for at least the same reasons that claim 1 is not patentable.

(B) Response to the arguments for Dependent Claim 2:

In response to the argument that Rauschnabel-US does not teach producing the smoothing layer by utilizing a magnetron plasma by utilizing a pulse frequency of 1 kHz to 300 kHz, it is argued that Rauschnabel-US teach producing a smoothing layer by utilizing a magnetron plasma (i.e. magnetic enhancement) by utilizing a pulse frequency in the range of 50 kHz to 2.45 GHz which overlaps Appellants frequency range. (See Rauschnabel-US Column 2 lines 1-42)

(C ) Response to the arguments for Dependent Claim 6:

In response to the argument that Rauschnabel-US does not teach admitting monomers during deposition of the smoothing layers, it is argued that Rauschnabel-US teach admitting monomers during deposition of the smoothing layers. (Rauschnabel-US Column 2 lines 1-42)

(D) Response to the arguments for Dependent Claim 7:

In response to the argument that Rauschnabel-US does not teach utilizing at least one of oxygen, nitrogen, and hydrogen in addition to monomers during the deposition of at least one smoothing layer, it is argued that Rauschnabel-US teach utilizing at least one of oxygen or nitrogen in addition to monomers during the deposition of the smoothing layer. (Rauschnabel-US Column 2 lines 1-42)

(E) Response to the arguments for Dependent Claims 9 and 10:

In response to the argument that Rauschnabel-US does not teach deposition of transparent ceramic layers takes place through magnetron sputtering, it is argued that

Rauschnabel-US teach deposition of transparent ceramic layer through magnetron sputtering. (Rauschnabel-US Column 3 lines 29-67; Column 4 lines 1-15)

In response to the argument that Rauschnabel-US does not teach deposition of transparent ceramic layers through reactive magnetron sputtering and using at least one of nitrogen, oxygen, and hydrogen, it is argued that Rauschnabel-US teach deposition of transparent ceramic layers through reactive magnetron sputtering and using at least one or nitrogen, oxygen, and hydrogen. (Rauschnabel et al. Column 3 lines 29-67; Column 4 lines 1-29)

(F) Response to the arguments for Dependent Claim 11:

In response to the argument that Rauschnabel-US does not teach depositing aluminum oxide, it is argued that Rauschnabel-US teach depositing aluminum oxide. (Rauschnabel-US Column 3 lines 60-65)

(G) Response to the arguments for Dependent Claim 12:

In response to the argument that Rauschnabel-US does not teach depositing silicon dioxide, it is argued that Rauschnabel-US teach depositing silicon dioxide. (Rauschnabel-US Column 3 lines 60-65)

(H) Response to the arguments for Dependent Claim 13:

In response to the argument that Rauschnabel-US does not teach depositing silicon nitride, it is argued that Rauschnabel-US teach depositing silicon nitride. (Rauschnabel-US Column 3 lines 60-65)

(I) Response to the arguments for Dependent Claim 19:

In response to the argument that Rauschnabel-US does not teach an alternating system is deposited by a magnetron arrangement in the plasma of which alternately a monomer and a reactive gas is admitted, it is argued that Rauschnabel-US teach depositing alternating layers and performing alternate monomer and reactive gas deposition in a single chamber. (Rauschnabel-US Column 6 lines 34-64)

(J) Response to the arguments for Dependent Claims 20 and 21:

In response to the argument that Rauschnabel-US does not teach deposition of the alternating layer system takes place through alternating admission of HMDSO and oxygen, it is argued that Rauschnabel-US teach alternating HDMSO and oxygen for sputtering. (Rauschnabel-US Column 2 lines 14-15; Column 4 lines 21)

In response to the argument that Rauschnabel-US does not teach during the deposition of the alternating layer system, flow of monomer and reactive gas and/or working gas admitted are gradually changed and at least at times occurs simultaneously so that individual layers of the alternating system merge into one another in a gradient form, it is argued that Rauschnabel-US teach depositing an alternating layer system where flows of the gas are controlled to form intermediate layers which correspond to the gradual change between layers. (Rauschnabel-US Column 3 lines 31-33; Column 5 lines 66-67; Column 6 lines 1-2)

(K) Response to the arguments for Dependent Claims 23, 24, 25 and 26:

In response to the argument that Rauschnabel-US does not teach the alternating layer system being deposited by at least one magnetron arrangement and admission of monomer and reactive gas and/or working gas takes place at different sites so that the

layers of the alternating layer system are deposited successively when passing through a coating region on a moving substrate, it is argued that Rauschnabel-US teach the alternating layer system is deposited by at least one magnetron arrangement and admission of monomer and reactive gas or working gas takes place at different sites so that the layers of the alternating layer system are deposited successively when passing through a coating region on a moving substrate. (Rauschnabel-US Column 6 lines 1-2; Column 6 lines 65-67; Column 7 lines 1-23)

In response to the argument that Rauschnabel-US does not teach wherein the alternating layer system is deposited by at least one magnetron arrangement and admission of monomer and reactive gas and/or working gas takes place at different sites so that a clear partial pressure gradient between the admitted gases develops in the region of the magnetron plasma such that when passing through the coating region on a moving substrate layers are successively deposited which merge into one another in a gradient form, it is argued that Rauschnabel-US teach the alternating layer system is deposited by at least one magnetron arrangement and admission of monomer and reactive gas or working gas taking place at different sites so that a clear partial pressure gradient between the admitted gases develop in the region of the magnetron plasma such that when passing through the coating region on a moving substrate layers are successively deposited which merge into one another in a gradient form. (Rauschnabel-US Column 6 lines 1-2; Column 6 lines 65-67; Column 7 lines 1-23)

In response to the argument that Rauschnabel-US does not teach wherein the substrate comprises a moving substrate guided through the coating region several

times, it is argued that Rauschnabel et al. teach the substrate comprises moving a substrate through the coating region several times. (Rauschnabel et al. Fig. 2; Column 6 lines 65-67; Column 7 lines 1-23)

In response to the argument that Rauschnabel-US does not teach wherein the deposition of the alternating layer system takes place through the simultaneous admission of HMDSO and oxygen, it is argued that Rauschnabel et al. teach deposition of the alternating system through simultaneous admission of HMDSO and oxygen. (Column 2 lines 1-20; Column 2 lines 49-62)

**(II) Response to the Traversal of rejection of claims 1, 2, 5-7, 9-14, 19-21 and 23-26 under 35 U.S.C. 102 (A) as being anticipated by Rauschnabel-WO.**

(A) Response to the arguments for independent Claim 1 and dependent Claims 5, 14, and 17:

Rauschnabel-WO is the publication of International Application No. PCT/DE99/01326 of which Rauschnabel-US is the U.S. national stage. These two documents have the same disclosure and Rauschnabel-US has been used for translational purposes in the rejection based on Rauschnabel-WO. Accordingly Appellants arguments against Rauschnabel-US are the same arguments as those for Rauschnabel-WO. Therefore the Examiner’s response to Appellant’s arguments are also the same as those applied above in Rauschnabel-US. (See Examiner's arguments above.)

(B) Response to the arguments for Dependent Claim 2:

Rauschnabel-WO is the publication of International Application No. PCT/DE99/01326 of which Rauschnabel-US is the U.S. national stage. These two documents have the same disclosure and Rauschnabel-US has been used for translational purposes in the rejection based on Rauschnabel-WO. Accordingly Appellants arguments against Rauschnabel-US are the same arguments as those for Rauschnabel-WO. Therefore the Examiner's response to Appellant's arguments are also the same as those applied above in Rauschnabel-US. (See Examiner's arguments above.)

(C ) Response to the arguments for Dependent Claim 6:

Rauschnabel-WO is the publication of International Application No. PCT/DE99/01326 of which Rauschnabel-US is the U.S. national stage. These two documents have the same disclosure and Rauschnabel-US has been used for translational purposes in the rejection based on Rauschnabel-WO. Accordingly Appellants arguments against Rauschnabel-US are the same arguments as those for Rauschnabel-WO. Therefore the Examiner's response to Appellant's arguments are also the same as those applied above in Rauschnabel-US. (See Examiner's arguments above.)

(D) Response to the arguments for Dependent Claim 7:

Rauschnabel-WO is the publication of International Application No. PCT/DE99/01326 of which Rauschnabel-US is the U.S. national stage. These two documents have the same disclosure and Rauschnabel-US has been used for translational purposes in the rejection based on Rauschnabel-WO. Accordingly

Appellants arguments against Rauschnabel-US are the same arguments as those for Rauschnabel-WO. Therefore the Examiner’s response to Appellant’s arguments are also the same as those applied above in Rauschnabel-US. (See Examiner's arguments above.)

(E) Response to the arguments for Dependent Claims 9 and 10:

Rauschnabel-WO is the publication of International Application No. PCT/DE99/01326 of which Rauschnabel-US is the U.S. national stage. These two documents have the same disclosure and Rauschnabel-US has been used for translational purposes in the rejection based on Rauschnabel-WO. Accordingly Appellants arguments against Rauschnabel-US are the same arguments as those for Rauschnabel-WO. Therefore the Examiner’s response to Appellant’s arguments are also the same as those applied above in Rauschnabel-US. (See Examiner's arguments above.)

(F) Response to the arguments for Dependent Claim 11:

Rauschnabel-WO is the publication of International Application No. PCT/DE99/01326 of which Rauschnabel-US is the U.S. national stage. These two documents have the same disclosure and Rauschnabel-US has been used for translational purposes in the rejection based on Rauschnabel-WO. Accordingly Appellants arguments against Rauschnabel-US are the same arguments as those for Rauschnabel-WO. Therefore the Examiner’s response to Appellant’s arguments are also the same as those applied above in Rauschnabel-US. (See Examiner's arguments above.)

(G) Response to the arguments for Dependent Claim 12:

Rauschnabel-WO is the publication of International Application No. PCT/DE99/01326 of which Rauschnabel-US is the U.S. national stage. These two documents have the same disclosure and Rauschnabel-US has been used for translational purposes in the rejection based on Rauschnabel-WO. Accordingly Appellants arguments against Rauschnabel-US are the same arguments as those for Rauschnabel-WO. Therefore the Examiner's response to Appellant's arguments are also the same as those applied above in Rauschnabel-US. (See Examiner's arguments above.)

(H) Response to the arguments for Dependent Claim 13:

Rauschnabel-WO is the publication of International Application No. PCT/DE99/01326 of which Rauschnabel-US is the U.S. national stage. These two documents have the same disclosure and Rauschnabel-US has been used for translational purposes in the rejection based on Rauschnabel-WO. Accordingly Appellants arguments against Rauschnabel-US are the same arguments as those for Rauschnabel-WO. Therefore the Examiner's response to Appellant's arguments are also the same as those applied above in Rauschnabel-US. (See Examiner's arguments above.)

(I) Response to the arguments for Dependent Claim 19:

Rauschnabel-WO is the publication of International Application No. PCT/DE99/01326 of which Rauschnabel-US is the U.S. national stage. These two documents have the same disclosure and Rauschnabel-US has been used for

translational purposes in the rejection based on Rauschnabel-WO. Accordingly Appellants arguments against Rauschnabel-US are the same arguments as those for Rauschnabel-WO. Therefore the Examiner's response to Appellant's arguments are also the same as those applied above in Rauschnabel-US. (See Examiner's arguments above.)

(J) Response to the arguments for Dependent Claims 20 and 21:

Rauschnabel-WO is the publication of International Application No. PCT/DE99/01326 of which Rauschnabel-US is the U.S. national stage. These two documents have the same disclosure and Rauschnabel-US has been used for translational purposes in the rejection based on Rauschnabel-WO. Accordingly Appellants arguments against Rauschnabel-US are the same arguments as those for Rauschnabel-WO. Therefore the Examiner's response to Appellant's arguments are also the same as those applied above in Rauschnabel-US. (See Examiner's arguments above.)

(K) Response to the arguments for Dependent Claims 23, 24, 25 and 26:

Rauschnabel-WO is the publication of International Application No. PCT/DE99/01326 of which Rauschnabel-US is the U.S. national stage. These two documents have the same disclosure and Rauschnabel-US has been used for translational purposes in the rejection based on Rauschnabel-WO. Accordingly Appellants arguments against Rauschnabel-US are the same arguments as those for Rauschnabel-WO. Therefore the Examiner's response to Appellant's arguments are

also the same as those applied above in Rauschnabel-US. (See Examiner's arguments above.)

**(III) Response to the Traversal of rejection of claims 3, 4, 8, 22 and 27 under 35 U.S.C. 103 as being obvious over Rauschnabel – US or Rauschnabel – WO in view of Landgraf – WO (Landgraf-US being used as English translation).**

(A) Response to the arguments for Dependent claims 3, 4, and 8:

In response to the argument that the prior art does not teach maintaining the magnetron plasma during the deposition of the at least one smoothing layer, a magnetron is used that is equipped with a target that is made of a material that can be reactively converted with nitrogen or oxygen, it is argued that Landgraf-WO (Landgraf-US as translation) teaches maintaining the magnetron plasma during deposition of the at least one smoothing layer, a magnetron is used that is equipped with a target that is made of a material that can be reactively converted. (See Landgraf-US Abstract; Paragraph 0011, 0017-0021) Rauschnabel-US or Rauschnabel-WO teach utilizing oxygen or nitrogen for sputtering. (See Rauschnabel-US or Rauschnabel-WO discussed above)

In response to the argument that the prior art does not teach utilizing a double magnetron to maintain the plasma during the deposition of the at least one smoothing layer, it is argued that Landgraf-WO (Landgraf-US as translation) teach magnetron sputtering and utilizing a second magnetron 13. (Landgraf-WO Paragraph 0011; 0021)

In response to the argument that the prior art does not teach a process pressure of 0.1 Pa to 10 Pa during the deposition of the at least one smoothing layer, it is argued

that Landgraf-WO (Landgraf-US as translation) teach the pressure can be 1 to 5 Pa. (Landgraf-US Paragraph 0031)

(B) Response to the arguments for Dependent Claims 22 and 27:

In response to the argument that the prior art does not teach the reactive gas and the monomer being admitted via a common gas intake, Landgraf-WO (Landgraf-US as translation) teach the reactive gas and the monomer gas being introduced via a common gas intake. (Landgraf-US Paragraph 0020)

**(IV) Response to the Traversal of rejection of claim 15 under 35 U.S.C. 103 as being unpatentable over Rauschnabel-US or Rauschnabel-WO in view of Yang.**

(A) Response to the arguments for Dependent claim 15:

In response to the argument that the prior art does not teach coating moving band shaped substrates, it is argued that Yang teaches coating a web with a monomer. (Yang Fig. 4; Column 8 lines 42-48)

**(V) Response to the Traversal of rejection of claim 16 under 35 U.S.C. 103 as being unpatentable over Rauschnabel-US or Rauschnabel-WO in view of Bringmann.**

(A) Response to the arguments for Dependent claim 16:

In response to the argument that the prior art does not teach keeping the temperature at below 200 degrees C during coating, it is argued that Bringmann et al. teach keeping the substrate at 35 degrees C during the coating process. (See Bringmann et al. Column 6 line 38)

**(VI) Response to the Traversal of rejection of claim 18 under 35 U.S.C. 103 as being unpatentable over Rauschnabel-US or Rauschnabel-WO in view of Keem.**

(A) Response to the arguments for Dependent claim 18:

In response to the argument that the prior art does not teach that at least one of the coating rate and substrate speed is adjusted such that plasma polymer layers are deposited as smoothing layers with a layer thickness of 50 nm to 5 microns and transparent ceramic layers are deposited with a layer thickness of 5 nm to 500 nm, it is argued that Keem et al. teach that layers should range from 50 Angstroms to 5,000 Angstroms. (Keem et al. Column 1 lines 64-68; Column 2 lines 1-25) Rauschnabel-US or Rauschnabel-WO teach moving the substrate. (See Rauschnabel-US or Rauschnabel-WO discussed above)

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Rodney G. McDonald/

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Conferees:

/Nam X Nguyen/

Supervisory Patent Examiner, Art Unit 1753

/Dah-Wei D. Yuan/

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